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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/713,819	11/14/2003	Eisuke Wadahara	1402-03	2568

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IP GROUP OF DLA PIPER RUDNICK GRAY CARY US LLP
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EXAMINER

PIZIALI, ANDREW T

ART UNIT PAPER NUMBER

1771

DATE MAILED: 04/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/713,819	WADAHARA ET AL.	
	Examiner	Art Unit	
	Andrew T. Piziali	1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12, 15-19, 22-24 and 28-38 is/are pending in the application.
- 4a) Of the above claim(s) 1-12 and 28-38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-19 and 22-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendment filed on 2/15/2006 has been entered. The examiner has withdrawn the rejections of claims 20 and 21 based on the cancellation of these claims.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 15 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 4,919,978 to Winkler et al. (hereinafter referred to as Winkler) in view of USPN 4,906,506 to Nishimura et al. (hereinafter referred to as '506).

Regarding claims 15 and 22-24, Winkler discloses a reinforcing fiber substrate characterized in that said reinforcing fiber substrate includes a reinforcing fiber yarn group arranged with reinforcing fiber yarns having a yield of 1,200 tex in parallel to each other in a warp direction and a weft-direction auxiliary yarn group formed by auxiliary yarns extending in a direction across said reinforcing fiber yarns and having a yield of 1% or less of the yield of said reinforcing fiber yarn, and having a yield of 5 tex or more (see entire document including column 1, line 47 through column 2, line 62, and the Examples).

Winkler does not specifically mention a powder-toughening resin material provided at 2 to 17% by weight at least on a surface of said reinforcing fiber substrate, but '506 discloses that it is known in the reinforcing fiber substrate art to include resin material in 0.2 to 10 weight

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percent at least on a surface of a reinforcing fiber substrate to integrally bond the substrates (see entire document including column 4, lines 6-19). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include resin material in 0.2 to 10 weight percent at least on a surface of a reinforcing fiber substrate, as taught by '506, because the resin would advantageously integrally bond the substrates.

Regarding the resin being a powder-toughening resin, the current specification discloses that a resin is a toughening resin when it is adhered to at least one surface of the substrate and provides strength to the substrate (see the paragraph bridging pages 49 and 50). Considering that '506 discloses that the resin adheres to at least one surface of the substrate and provides "bonding strength" (column 3, lines 7-17, column 6, lines 22-39, and the Figures), it appears that the resin disclosed by '506 is a toughening resin.

Regarding the resin being a powder resin, current claim 19 claims that the powder resin may be in studded formation. Therefore, claim 19 defines the term "powder resin" to include molten powder in dot-like formation (see page 73, lines 14-24 of the current specification). Considering that '506 discloses that the resin material may be studded on a surface of the reinforcing fiber substrate (column 8, line 66 through column 10, line 34 and Figures 11-77), '506 can be considered a powder resin as defined by applicant.

Regarding claim 22, Winkler does not specifically mention the claimed properties, but considering that the reinforcing fiber substrate taught by the applied prior art is identical to the claimed reinforcing fiber substrate, it appears that if the composite reinforcing fiber volume fraction was 53 to 65% it would inherently possess the claimed properties.

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The Patent and Trademark Office can require applicants to prove that prior art products do not necessarily or inherently possess characteristics of claimed products where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes; burden of proof is on applicants where rejection based on inherency under 35 U.S.C. § 102 or on prima facie obviousness under 35 U.S.C. § 103, jointly or alternatively, and Patent and Trademark Office's inability to manufacture products or to obtain and compare prior art products evidences fairness of this rejection, *In re Best, Bolton, and Shaw*, 195 USPQ 431 (CCPA 1977).

Regarding claim 23, Winkler does not appear to specifically mention vacuum assisted injection molding, but Winkler does disclose that the substrate may be used for molding (column 3, line 1). Considering that the reinforcing fiber substrate taught by the applied prior art is identical to the claimed reinforcing fiber substrate, it appears that the substrate is capable of performing the claimed use. It is noted that the recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

Regarding claim 24, Winkler discloses that the substrate may be used for formation of a preform in which a plurality of substrates are stacked and integrated (column 1, lines 54-62).

4. Claims 16-17 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 4,919,978 to Winkler et al. in view of USPN 4,906,506 to Nishimura et al. as applied to claims 15 and 22-24 above, and further in view of USPN 4,320,160 to Nishimura et al. (hereinafter referred to as '160).

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Regarding claims 16-17 and 22, Winkler does not appear to mention warp-direction auxiliary yarns, but '160 discloses that it is known in the prepreg art to form a substrate with warp and weft-direction auxiliary yarns, as claimed (see Figures 1-9), to further fix the reinforcing yarns (see entire document including column 7, lines 6-18). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include warp and weft-direction auxiliary yarns, as taught by '160, because the auxiliary yarns would further fix the reinforcing yarns.

Regarding claim 16, Winkler discloses that the auxiliary yarns may have a yield of 5 tex or more while the reinforcing yarns may have a yield of 1,200 tex (column 2, lines 6-9 and the Examples). In addition, '160 discloses that an equal number of reinforcing yarns and auxiliary yarns may be used and that the reinforcing yarns may comprise 1,000 to 30,000 filaments while the auxiliary yarns may comprise 100 to 800 filaments of substantially the same diameter (see Figures 1-9, Table 1 and column 6, lines 30-46). Considering that '160 discloses that the reinforcing substrate may comprise as little as 0.33% auxiliary filaments, it appears that '160 teaches or at least suggests that the yield may be 20% or less of the yield of the reinforcing yarns. It is also noted that '160 discloses that the quantity of reinforcing filaments may be varied based on the desired strength (column 3, lines 48-56). Therefore, in the event that it is shown that '160 does not specifically teach or suggest the claimed yield, it would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the yield, such as to 20% or less of the yield of the reinforcing yarns, because the yield directly affects the strength of the substrate and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

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Regarding claim 22, Winkler does not specifically mention the claimed properties, but considering that the reinforcing fiber substrate taught by the applied prior art is substantially identical to the claimed reinforcing fiber substrate, it appears that if the composite reinforcing fiber volume fraction was 53 to 65% it would inherently possess the claimed properties.

5. Claims 18 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 4,919,978 to Winkler et al. in view of USPN 4,906,506 to Nishimura et al. in view of USPN 4,320,160 to Nishimura et al. as applied to claims 16-17 and 22 above, and further in view of USPN 3,881,522 to Lewis et al. (hereinafter referred to as Lewis) in view of USPN 5,132,394 to Bockrath.

Regarding claims 18 and 22, Winkler does not specifically mention the mean gap distance between adjacent fibers. Winkler is silent with regards to specific gap distances, therefore, it would have been obvious to look to the prior art for conventional gap distances. Lewis provides this conventional teaching showing that it is known in the unidirectional fabric art to vary the gap distance based on the desired flexibility and pliability (see entire document including column 3, lines 12-21). Lewis specifically mentions a gap distance of about 1 mm but does not limit the gap to this distance (see column 6, lines 16-33 and Figure 8). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the distance between adjacent reinforcing fibers, such as from 0.1 to 1 mm, because the gap distance determines the flexibility and pliability of the fabric and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Winkler does not specifically mention a sizing agent, but Bockrath discloses that it is known in the reinforcing fiber fabric art to apply a sizing agent to fibers to facilitate the weaving process and to avoid or minimize loss of fiber properties (see entire document including column 10, lines 29-38). It would have been obvious to one having ordinary skill in the art at the time the invention was made to apply a sizing agent to the auxiliary fibers, because the sizing agent would facilitate the weaving process and would avoid or minimize loss of fiber properties.

Regarding claim 22, Winkler does not specifically mention the claimed properties, but considering that the reinforcing fiber substrate taught by the applied prior art is substantially identical to the claimed reinforcing fiber substrate, it appears that if the composite reinforcing fiber volume fraction was 53 to 65% it would inherently possess the claimed properties.

6. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 4,919,978 to Winkler et al. in view of USPN 4,906,506 to Nishimura et al. as applied to claims 15 and 22-24 above, and further in view of USPN 5,071,711 to Heck et al. (hereinafter referred to as Heck).

'506 discloses that the resin material may be studded on a surface of the reinforcing fiber substrate (column 8, line 66 through column 10, line 34 and Figures 11-77). '506 does not specifically mention the diameter of the studded resin material, but considering that '506 discloses that the fibers may have a diameter of up to 0.86 mm (column 4, lines 26-41) and considering that the studded resin material is illustrated as having a diameter less than the diameter of the fibers (Figures 11-77), it appears that '506 teaches or at least suggests that the studded resin material may have a diameter of less than 1 mm.

'506 is silent with regards to the studded resin mean height, therefore, it would have been obvious to look to the prior art for conventional resin heights. Heck provides this conventional

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teaching showing that it is known in the reinforcing fiber substrate art to use a resin height of from about 5 to about 80 microns (see entire document including column 3, lines 14-22).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the studded resin height from about 5 to about 80 microns motivated by the expectation of successfully practicing the teachings of '506.

7. Claims 15-17 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 4,320,160 to Nishimura et al. in view of USPN 4,906,506 to Nishimura et al. in view of USPN 4,919,978 to Winkler et al.

Regarding claims 15-17 and 22-24, '160 discloses a reinforcing fiber substrate characterized in that said reinforcing fiber substrate includes a reinforcing fiber yarn group (B) arranged with reinforcing fiber yarns (2') in parallel to each other in one direction and a weft-direction auxiliary yarn group formed by auxiliary yarns (3) extending in a direction across said reinforcing fiber yarns (see entire document including Figures 1-9, the paragraph bridging columns 1 and 2, and column 3, lines 2-25).

'160 does not specifically mention a resin material provided at 2 to 17% by weight at least on a surface of said reinforcing fiber substrate, but '506 discloses that it is known in the reinforcing fiber substrate art to include resin material in 0.2 to 10 weight percent at least on a surface of a reinforcing fiber substrate to integrally bond the substrates (see entire document including column 4, lines 6-19). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include resin material in 0.2 to 10 weight percent at least on a surface of a reinforcing fiber substrate, as taught by '506, because the resin would advantageously integrally bond the substrates.

Regarding the resin being a powder-toughening resin, the current specification discloses that a resin is a toughening resin when it is adhered to at least one surface of the substrate and provides strength to the substrate (see the paragraph bridging pages 49 and 50). Considering that ‘506 discloses that the resin adheres to at least one surface of the substrate and provides “bonding strength” (column 3, lines 7-17, column 6, lines 22-39, and the Figures), it appears that the resin disclosed by ‘506 is a toughening resin.

Regarding the resin being a powder resin, current claim 19 claims that the powder resin may be in studded formation. Therefore, claim 19 defines the term “powder resin” to include molten powder in dot-like formation (see page 73, lines 14-24 of the current specification). Considering that ‘506 discloses that the resin material may be studded on a surface of the reinforcing fiber substrate (column 8, line 66 through column 10, line 34 and Figures 11-77), ‘506 can be considered a powder resin as defined by applicant.

Example 1 of ‘160 discloses that the auxiliary yarns may have a yield of 22.5 tex, but ‘160 does not limit the yield of the auxiliary yarn nor does ‘160 mention the yield of the reinforcing yarns. ‘160 is silent with regards to specific yield ranges, therefore, it would have been obvious to look to the prior art for conventional yields. Winkler (see entire document) provides this conventional teaching showing that it is known in the prepreg art to use auxiliary yarns with a yield of 5 tex (column 2, lines 6-9) and reinforcing yarns with a yield of 1,200 tex (see Examples). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the auxiliary yarn with a yield of 5 tex and the reinforcing yarn with a yield of 1,200 tex, as taught by Winkler, motivated by the expectation of

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successfully practicing the invention of '160 and because it is within the general skill of a worker in the art to select a known yield on the basis of its suitability and desired characteristics.

Regarding claims 16 and 17, '160 discloses that the substrate may have a warp-direction auxiliary yarn group formed by auxiliary yarns (3') extending in a direction parallel to said reinforcing fiber yarns (see Figures 1-9). Regarding claim 16, '160 does not specifically mention the yield of the auxiliary yarns, but '160 does disclose that an equal number of reinforcing yarns and auxiliary yarns may be used and that the reinforcing yarns may comprise 1,000 to 30,000 filaments while the auxiliary yarns may comprise 100 to 800 filaments of substantially the same diameter (see Figures 1-9, Table 1 and column 6, lines 30-46). Considering that '160 discloses that the reinforcing substrate may comprise as little as 0.33% auxiliary filaments, it appears that '160 teaches or at least suggests that the yield may be 20% or less of the yield of the reinforcing yarns. It is also noted that '160 discloses that the quantity of reinforcing filaments may be varied based on the desired strength (column 3, lines 48-56). Therefore, in the event that it is shown that '160 does not specifically teach or suggest the claimed yield, it would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the yield, such as to 20% or less of the yield of the reinforcing yarns, because the yield directly affects the strength of the substrate and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Regarding claim 17, '160 discloses that the weft-direction auxiliary yarn group may be disposed on each surface of the substrate (see Figures 1-4).

Regarding claim 22, '160 does not specifically mention the claimed properties, but considering that the reinforcing fiber substrate taught by the applied prior art is substantially

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identical to the claimed reinforcing fiber substrate (unidirectional reinforcing fiber structure comprising warp and weft auxiliary yarns aligned in a specific orientation in a specific amount and also comprising resin in a specific shape and in a specific amount), it appears that if the composite reinforcing fiber volume fraction was 53 to 65% it would inherently possess the claimed properties.

Regarding claims 23 and 24, '160 does not specifically mention vacuum assisted injection molding or formation of a plurality of stacked and integrated preforms, but '160 does disclose that the substrate may be used for pressure molding (see Example 1) and considering that the reinforcing fiber substrate taught by the applied prior art is substantially identical to the claimed reinforcing fiber substrate (unidirectional reinforcing fiber structure comprising warp and weft auxiliary yarns aligned in a specific orientation in a specific amount and also comprising resin in a specific shape and in a specific amount), it appears that the substrate is capable of performing the intended uses. It is noted that the recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

8. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 4,320,160 to Nishimura et al. in view of USPN 4,906,506 to Nishimura et al. in view of USPN 4,919,978 to Winkler et al. as applied to claims 15-17 and 22-24 above, and further in view of USPN 3,881,522 to Lewis et al. and USPN 5,132,394 to Bockrath.

'160 discloses that gaps are present between the reinforcing fibers (see Figures 1-9), but '160 does not specifically mention the mean gap distance between adjacent fibers. '160 is silent

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with regards to specific gap distances, therefore, it would have been obvious to look to the prior art for conventional gap distances. Lewis provides this conventional teaching showing that it is known in the unidirectional fabric art to vary the gap distance based on the desired flexibility and pliability (see entire document including column 3, lines 12-21). Lewis specifically mentions a gap distance of about 1 mm but does not limit the gap to this distance (see column 6, lines 16-33 and Figure 8). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the distance between adjacent reinforcing fibers, such as from 0.1 to 1 mm, because the gap distance determines the flexibility and pliability of the fabric and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

'160 does not specifically mention a sizing agent, but Bockrath discloses that it is known in the reinforcing fiber fabric art to apply a sizing agent to fibers to facilitate the weaving process and to avoid or minimize loss of fiber properties (see entire document including column 10, lines 29-38). It would have been obvious to one having ordinary skill in the art at the time the invention was made to apply a sizing agent to the auxiliary fibers, because the sizing agent would facilitate the weaving process and would avoid or minimize loss of fiber properties.

9. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 4,320,160 to Nishimura et al. in view of USPN 4,906,506 to Nishimura et al. in view of USPN 4,919,978 to Winkler et al. as applied to claims 15-17 and 22-24 above, and further in view of USPN 5,071,711 to Heck.

'506 discloses that the resin material may be studded on a surface of the reinforcing fiber substrate (column 8, line 66 through column 10, line 34 and Figures 11-77). '506 does not

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specifically mention the diameter of the studded resin material, but considering that '506 discloses that the fibers may have a diameter of up to 0.86 mm (column 4, lines 26-41) and considering that the studded resin material is illustrated as having a diameter less than the diameter of the fibers (Figures 11-77), it appears that '506 teaches or at least suggests that the studded resin material may have a diameter of less than 1 mm.

'506 is silent with regards to the studded resin mean height, therefore, it would have been obvious to look to the prior art for conventional resin heights. Heck provides this conventional teaching showing that it is known in the reinforcing fiber substrate art to use a resin height of from about 5 to about 80 microns (see entire document including column 3, lines 14-22). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the studded resin height from about 5 to about 80 microns motivated by the expectation of successfully practicing the teachings of '506.

Response to Arguments

10. Applicant's arguments have been considered but are mostly moot in view of the new grounds of rejection.

The applicant asserts that '160 and '506 each fail to teach or suggest resin in an amount of 2 to 17% by weight or a powder-toughening resin. The examiner respectfully disagrees. '160 does not appear to specifically mention a resin material provided at 2 to 17% by weight at least on a surface of said reinforcing fiber substrate, but '506 discloses that it is known in the reinforcing fiber substrate art to include resin material in 0.2 to 10 weight percent at least on a surface of a reinforcing fiber substrate to integrally bond the substrates (see entire document including column 4, lines 6-19). It would have been obvious to one having ordinary skill in the

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art at the time the invention was made to include resin material in 0.2 to 10 weight percent at least on a surface of a reinforcing fiber substrate, as taught by '506, because the resin would advantageously integrally bond the substrates.

Regarding the resin being a powder-toughening resin, the current specification discloses that a resin is a toughening resin when it is adhered to at least one surface of the substrate and provides strength to the substrate (see the paragraph bridging pages 49 and 50). Considering that '506 discloses that the resin adheres to at least one surface of the substrate and provides "bonding strength" (column 3, lines 7-17, column 6, lines 22-39, and the Figures), it appears that the resin disclosed by '506 is a toughening resin.

Regarding the resin being a powder resin, current claim 19 claims that the powder resin may be in studded formation. Therefore, claim 19 defines the term "powder resin" to include molten powder in dot-like formation (see page 73, lines 14-24 of the current specification). Considering that '506 discloses that the resin material may be studded on a surface of the reinforcing fiber substrate (column 8, line 66 through column 10, line 34 and Figures 11-77), '506 can be considered a powder resin as defined by applicant.

Regarding claim 18, the applicant asserts that applied prior art fails to teach or suggest the claimed gap size. The examiner respectfully disagrees. '160 discloses that gaps are present between the reinforcing fibers (see Figures 1-9), but '160 does not specifically mention the mean gap distance between adjacent fibers. '160 is silent with regards to specific gap distances, therefore, it would have been obvious to look to the prior art for conventional gap distances. Lewis provides this conventional teaching showing that it is known in the unidirectional fabric art to vary the gap distance based on the desired flexibility and pliability (see entire document

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including column 3, lines 12-21). Lewis specifically mentions a gap distance of about 1 mm but does not limit the gap to this distance (see column 6, lines 16-33 and Figure 8). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the distance between adjacent reinforcing fibers, such as from 0.1 to 1 mm, because the gap distance determines the flexibility and pliability of the fabric and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Conclusion

11. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T. Piziali whose telephone number is (571) 272-1541. The examiner can normally be reached on Monday-Friday (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

atp

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ANDREW T. PIZIALI
PATENT EXAMINER